Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-26. (Canceled)

27. (Currently amended) A method of producing and secreting insulin in a subject in vivo, the method comprising introducing into the subject an intermediate lobe pituitary cell that is capable of storing and secreting insulin and comprises a nucleic acid sequence encoding insulin, the nucleic acid sequence being operatively linked to a heterologous promoter that directs expression of the nucleic acid sequence in the intermediate lobe pituitary cell, thereby producing and secreting insulin in said subject.

28-29. (Canceled)

30. (Previously presented) The method of claim 27, wherein said intermediate lobe pituitary cell is an autologous cell.

31. (Previously presented) The method of claim 27, wherein said subject is a human and the intermediate lobe pituitary cell is an autologous cell.

32-59 (Canceled)

60. (Currently amended) The method of claim 27, wherein said intermediate lobe pituitary cell is an ~~allogenic~~ allogeneic cell.

61. (Currently amended) The method of claim 27, wherein said intermediate lobe pituitary cell is a ~~xenogenic~~ xenogeneic cell.

62-63. (Canceled)

64. (Currently amended) The method of claim 27, wherein said cell further comprises one or more nucleotide sequence encoding a protein that controls ~~expression~~ secretion of insulin in a glucose stimulated manner.

65. (Currently amended) The method of claim 64, wherein said protein that controls ~~expression~~ secretion of insulin in a glucose stimulated manner is a glucokinase.

66. (Currently amended) The method of claim 65, wherein said glucokinase is the pancreatic β-cell isoform of glucokinase.

67. (Currently amended) The method of claim 64, wherein said protein that controls ~~expression~~ secretion of insulin in a glucose stimulated manner is a glucose transporter.

68. (Previously presented) The method of claim 67, wherein said glucose transporter is GLUT-2.

69. (Currently amended) The method of claim 64, wherein said protein that controls ~~expression~~ secretion of insulin in a glucose stimulated manner is an ion channel that mediates glucose-stimulated insulin release.

70. (Previously presented) The method of claim 69, wherein said ion channel that mediates glucose-stimulated insulin release is a K+/ATP ion channel.

71. (Currently amended) The method of claim 64, wherein said protein that controls ~~expression~~ secretion of insulin in a glucose stimulated manner is glucagon-like peptide-1 (GLP-1).

72. (Previously presented) The method of claim 64, further comprising evaluating the subject for a parameter relating to glucose metabolism or insulin secretion.

73. (Previously presented) The method of claim 72, wherein said parameter is selected from the group consisting of: the amount, distribution or structure of intracellular or extracellular insulin; glucose phosphorylating activity; glucose utilization; glucose uptake; and insulin secretion.

74. (Previously presented) The method of claim 27, wherein said promoter is a pro-opiomelanocortin (POMC) promoter.

75-78. (Canceled)

79. (Previously presented) The method of claim 27, wherein said intermediate lobe pituitary cell is a fetal or post natal cell.

80. (Previously presented) The method of claim 27, wherein said subject is a human.

81. (Previously presented) The method of claim 27, wherein said intermediate lobe pituitary cell is a cultured cell.

82. (Previously presented) The method of claim 81, wherein said cultured cell is a cultured human cell.

83. (Previously presented) The method of claim 27, wherein said cell is from a non-human transgenic animal.

84-85. (Canceled)

86. (Previously presented) The method of claim 27, further comprising the step of administering an immunosuppressant to the subject.